54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

289 bark just as they are cleaned and beat them out as thin as they will
412 bear without any regard to form. The Mallet is of the same shape as that used at Otaheite, each side being three inches broad, one of which is smooth and the other three marked length ways with five or Six grooves, or furrows. I never saw a piece of cloth come from under the Mallet of more than two yards in length and a yard or a yard and a half wide, but more generally not a fourth part as big, to make larger pieces requires a different process. They have a large piece of wood made out of the trunk of [a] tree split in two, one side is made round and smooth and the other hollowed out; the round side is fifteen or eighteen inches over and the length of the log is equal to the broadest cloth the family it belongs to makes. On the round side of this log they fix platens, or patterns which are made of the leaves of the Wharra tree plated one into another, and stitched, or worked over with the fibres of Cocoanut husks by which the pattern is
381 formed so as to give an impression. Over these they spread very
824 smooth the cloth, and bring it to the breadth they intend it by pasting one piece to another with a fruit which they call , it is used when green, is something larger than a current berry and is an excellent gluten.[1] The work women hold a bunch of them between her teeth from which she plucks one when wanted. Over this first
386 cloth is pasted a second and some times a third if the cloth is in-
824 tended to be thick, the last is a[l]ways the best. After all the hôles, if any, are repaired by pasting on patches, the whole is gently rubed over with a sort of varnish, or oily substance, which is expressed from the bark of a tree called by them .[2] At the same time this is laying on they press the Cloth with the hand so that it receives
386 the impression of the pattern. The varnish presently dries and is of a
824 light brown Colour, if they want it darker, they mix with it, more or less, of the soot that is produced by burning an oily nut the same as serves for Candles at Otaheite.[3] The first length being finished they remove it of the block and begin with another, thus they continue pasting one piece to another and working one length after another

[1] 'The viscous juice of a berry called 'Toōō', says Anderson, with the note, 'This is the Cordia'. Tou in Tahiti and other islands is *Cordia subcordata*; but in Tonga, according to Churchward's dictionary, is *Melochia odorata* (the student who wishes to confuse himself may consult also Yuncker's *Plants of Tonga*). Churchward has a second definition, in which the parboiled fruit of *Melochia*, dipped in water, was formerly used as *tou* for pasting tapa—*tou* thus apparently being the paste. But Anderson and Cook must have seen the process.

[2] '. . . a juice extract'd from a tree call'd Kokka'—King. '. . . the soft bark of the *coca* tree and the *toei-toei* tree, either of which when wrung out, without water, yields a reddish brown juice, to be used as a die.'—Mariner, II, p. 204. Coca = Koka, *Blackeja jamaica*; *toei-toei* = Tuitui, or candle-nut, *Aleurites moluccana* (the Tahitian *tutui*).

[3] That is, the candle-nut, from the bark of the tree of which came the original lighter brown.

55: Anderson D,T-5 (1777) 1967 0U9 Tonga 0U9

a muscle shell. It is then roll'd up to take of the convexity which it had round the plant, tied and macerated in water for some time (they say a night), after which it is laid across the trunk of a small tree squar'd, and beaten with a square wooden instrument about a foot long, full of coarse grooves on all sides but sometimes with one plain. According to the size of the bark a piece is soon produc'd but the operation is often repeated by another hand, or it is folded several times and beat longer by the same, which seems rather to close than divide its texture. When it is sufficiently done it is spread out to dry, the pieces being from four or five feet to six or more in length and half as broad. They are then given to another person who joins the pieces by smearing part of them over with the viscous juice of a Berry call'd 'Tooo,[a] which serves as a glue, till they become of a considerable size and are then laid over a large piece of wood with a kind of stamp made of a fibrous substance pretty closely interwoven under it. They then take a bit of cloth and dip it in a juice which stands close by in a cocoa nut shell, express'd from the bark of a tree with the outer rind scrap'd off call'd Kokka,[1] and rub it briskly upon the cloth, which at once leaves a dull brown colour and a gloss for glazing & dryness upon its surface, the stamp at the same time making a slight impression that answers no other purpose which I could see than perhaps to make the several pieces that are glued together stick a little more firmly. In this manner they proceed joining and staining by degrees till they produce a piece of such length and breadth as they want, generally leaving a border of a foot broad at the sides and longer at the ends unstaind. Through the whole, if any part of the original pieces are too thin or have holes, which is often the case, they glue spare bits upon them till it is of an equal thickness; and when they want to produce a black colour they mix the soot procur'd from an oily nut calld Dooe'dooe[2] with the juice of the Kokka in different quantitys as they want the tinge. They say that the black sort, which is commonly most glaz'd, makes a cold dress but the other a warm, and to obtain strength in both they are always carefull to join the small pieces length-ways which makes it impossible to tear the cloth in any direction but one.

As we wanted much to know if there was any good water about the bay our guides said they would conduct us to such a place and carried us to two different spots from whence the tide had fallen some way,

[a] This is the Cordia. [The Tahitian Tou is *Cordia subcordata*, but the Tongan tree of which the berries were used for this purpose was *Melochia aristata* or *M. odorata*. Cf. Cook, p. 172, n. 1 above.]

[1] Koka, *Bischofia javanica*.

[2] Tuitui, *Aleurites moluccana*.

76: Yuncker N-4,5 (1953) 1959 OU9 Tonga OU9

137 Vava'u: *Crosby.*

'Tafahi: in coconut plantation on coastal plateau between Tafahi and Tafe, Dec. 13, 1951, *Hürlimann 510.*

Niuatoputapu: in bushy second-growth forest on volcanic ridge above Vaipoa, Dec. 5, 1951, *Hürlimann 363.*

Frequent throughout the group. From tropical Africa and southern Asia to Australia, the Philippines, and Polynesia.

For an informative discussion of this species, see Merrill in the Journal of the Arnold Arboretum (26: 85-92, 1945).

[287] [824] [381] Tongan name: *mahoa'a.* The tubers furnish starch used as an adhesive in the manufacture of tapa, or bark cloth.

Family DIOSCOREACEAE

Genus **Dioscorea** Plumier

Dioscorea alata Linnaeus, Sp. Pl., 1033, 1753.

Herbaceous or somewhat woody, high-climbing vine with four-angled and winged stems, often bearing small, axillary tubers. Leaves opposite, ovate-cordate, attenuately acuminate, entire, up to 12 cm. or more long, palmately 9- to 11-nerved, petiole nearly as long as blade. Staminate flowers small, greenish, numerous in narrow, paniculate, axillary clusters, up to 30 cm. or more long.

Tongatapu: *Cook.*

Vava'u: *Crosby.*

[262] [824] Cultivated throughout Tonga for its edible tubers, which form an important part of the diet of the Tongan people. A large number of varieties are recognized by the Tongans. A native of the Old World tropics, now of pantropic distribution.

Tongan name: *'ufi.*

Dioscorea bulbifera Linnaeus, Sp. Pl., 1033, 1753.

Herbaceous, glabrous, high-climbing, twining vine. Leaves alternate, oval-ovate to suborbicular, abruptly acuminate, base deeply and obtusely cordate, up to 20 cm. or more long, palmately 7 to 11 or more nerved, petioles commonly half to as long as blade, twisted at base, green or reddish aerial tubers up to 5 cm. or more in diameter often present in the axils. Flowers small, in long, slender, spikelike clusters in axillary fascicles.

Tongatapu: *Cook;* in thicket near Navutoka village, Feb. 27, 1953, *Yuncker 15088.*

'Eua: in thicket along trail near center of island, Mar. 20, 1953, *Yuncker 15383.*

Vava'u: *Crosby.*

Tafahi: ridge of the Piu 'o Tafahi, Dec. 10, 1951, *Hürlimann 425.*

Niuatoputapu: along road between Vaipoa and Falehau, Jan. 2, 1953, *Hürlimann 650.*

/218 cont./

287 generally handled by a group of 10 to 16 women (girls). (571)
386
[461]
[476]

571. This is a work team (kautaha) (see pp. 137-140) that carries out the process under the supervision of an older woman; a woman seldom does this work by herself.

[368] They do this work in special houses (572)

572. fale kautaha = house of kautaha (see pp. 134-136, 137-140).

on a structure built of boards, some four to six meters long, that has the shape of a cylinder cut in half lengthwise and resting on its open side. This "drum" the women first wrap with coconut fiber cords, then lay over them "raw tapa" pieces (feta'aki) and on top of these they place the printing panels (kupesi); the latter are larger or smaller /219/ panels made of pandanus leaves of the paongo species and kaka 'i niu (that is, the natural tissue at the base of the leaf stem of the coconut palm) sewed together with hibiscus bast threads, on which various decorations made from the center rib (tu'a niu) of the pinnate leaflets of the coconut palm are fastened with coconut fibers (from the husk of the nut) and with single hibiscus bast threads. On top of these printing panels, to protect them, the women again place "raw tapa" pieces (feta'aki) as "pulusi" (covering tapa) which they press firmly against the relief-like patterns and rub with dye-soaked (koka-dye) scraps of tapa (tata). Then the glueing and dyeing (koka'anga) of the large tapa lengths can commence. On the prepared bottom
● [381] surface they place a first layer (laulalo) consisting of several feta'aki, (573)

573. The small holes which may result from beating the tapa are first glued with patches of the same material.

press it firmly with the dye-soaked scrap (tata), smear its surface with parboiled (poisonous) manioc roots (as glue) (tou) and place on

/219 cont./

287 this a second layer of tapa (lauolunga) (consisting of feta'aki), (574)
386
(381)

574. The individual feta'aki are properly trimmed as they are laid in place.

which is pressed on (glued) and rubbed with the color-scrap soaked with koka dye, so that on the now brownish surface the darker brown patterns of the printing panels stand out in contrast. With paintbrushes (fo'i fa) (pandanus fruit) the women draw over the individual patterns. When they have finished painting the length of the tapa (575)

(412)

575. They straighten the edge of it with a knife or with scissors.

on the "drum," they pull it down far enough so that on its longitudinal edge more feta'aki pieces can be glued, layered, dyed and painted, whereupon the process is repeated again and again, so that on one side of the drum a longer and longer length of two-ply, dyed and painted tapa builds up. On both edges, which remain uncolored, the women (802) always paint the number of the segment in arabic numerals; one segment 287 is always two hand-spans wide. A finished tapa length is about 20 to 27 meters long and 3.70 to 4.40 meters wide. For special purposes (for example, as a gift to the sovereign) they make tapas that are more than 100 meters long.

The glued and dyed tapa lengths are spread out with the colored side uppermost to dry in the sun. The women also lay them in the grass in front of their dwellings before sunrise, so that the dew (and thereafter the sun) can make the bast cloth "strong and beautiful."

287 The final operation is the redrawing of the decorations on the
53 printing panels. This the owner (576)
386

576. The owner of such a long tapa is always the woman who furnished the necessary raw tapa (feta'aki); the kautaha works for each of its members in turn (see pp. 137-140).

(422)
(476)